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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,015	09/16/2003	Jen-Chih Wang	Q1092	2756
34335	7590	07/28/2005	EXAMINER	
PAI PATENT & TRADEMARK LAW FIRM 1001 FOURTH AVENUE, SUITE 3200 SEATTLE, WA 98154			GOLUB, MARCIA A	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/664,015	<b>Applicant(s)</b> WANG ET AL.	
	<b>Examiner</b> Marcia A. Golub	<b>Art Unit</b> 2828	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

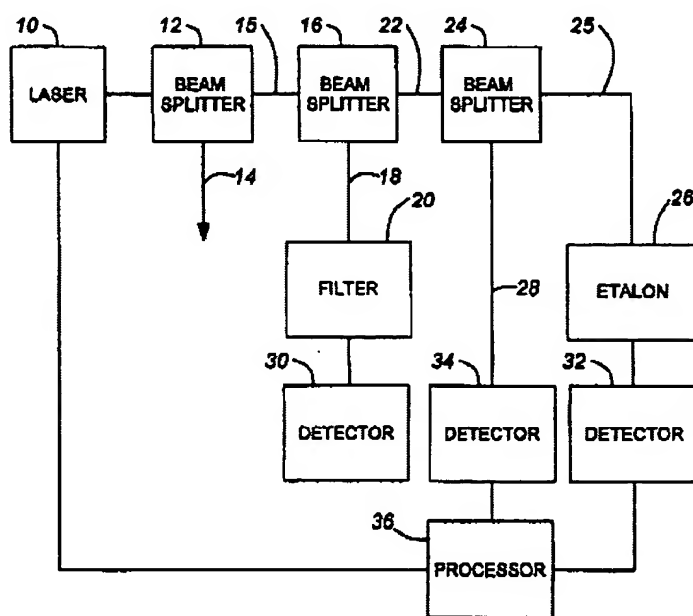
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 8-13 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Colbourne et al. (U.S.Pat. 6,560,252).

Regarding claim 8, Fig 1. of Colbourne discloses “a wavelength stabilization control device for controlling a light-wave output by a tunable component [10] in an optical communication system, comprising: a first beam splitting component [24] for splitting the light-wave into a first light-wave and a second light-wave; a first photo-detecting component [34] for receiving the first light-wave and transforming the first light-wave into a first electric signal; a second beam splitting component [16] for splitting the second light-wave into a third light-wave and a forth light-wave; a second photo-detecting component [30] for receiving the third light-wave and transforming the third light-wave into a second electric signal; a third photo-detecting component [32] for receiving the fourth light-wave and transforming the fourth light-wave into a third electric signal; an optical filtering component [20] provided between the second beam splitting component [16] and the second photo-detecting component [30] for transforming

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the light-wave spectrum of the third light-wave covering the whole wavelength tuning range of the tunable component [10] into a light-wave spectrum having a non-zero slope [column 2 lines 11-14]; and a Fabry-Perot Etalon [26, column 6 lines 8-11] provided between the second beam splitting component [16] and the third photo-detecting component [32] for separating a light-wave including a specific wavelength from the fourth light-wave.



**Figure 1 of Colbourne**

Regarding claims 9-13, Fig 1 of Colbourne discloses "a wavelength stabilization control device, further comprising: a servo component [36] for receiving the first electric signal, the second electric signal and the third electric signal to perform signal processing." The reference also discloses the tunable component [10] to be a tunable laser light source; and the first beam splitting component [24] and second beam splitting component [16] to be beam splitters. The reference also specifies the optical filtering component to be either a high-

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pass edge filter or a low-pass edge filter [column 2 lines 11-14, column 5 lines 9-15]. It is well known in the art that the function of a low/high pass edge filter is to produce a monotonic output with descending/rising slope.

Regarding claims 18-20, the apparatus as shown above with regards to claims 8-13, discloses the functions and limitations of the method claims 18-20.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (Fig. 1), and further in view of Andersen et al (U.S.Pub. 2003/0202548).

Regarding claim 1, Fig.1 of the application discloses "a wavelength stabilization control device for controlling a light-wave output by a tunable component [1] in an optical communication system, comprising: a beam splitting component [311] for splitting the light-wave into a first light-wave and a second light-wave; a first photo-detecting component [314] for receiving the first light-wave and transforming the first light-wave into a first electric signal; a second photo-detecting component [313] for receiving the second light-wave and transforming the second light-wave into a second electric signal; a Fabry-Perot Etalon [312] provided between the beam splitting component [311] and the

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second photo-detecting component [313] for separating a light-wave including a specific wavelength from the second light-wave". Fig. 1 of the application does not disclose "an optical filtering component provided between the Fabry-Perot Etalon and the second photo-detecting component for filtering a part of channels of the light-wave including the specific wavelength." However, paragraph 6 of Andersen teaches that a typical laser tuning system comprises of a laser, a beam splitter, one or more optical filters that separate light having a particular wavelength and a photo-detector. Furthermore, Encyclopedia of Laser Physics and Technology teaches that a Fabry-Perot etalon is a type of optical filter.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Andersen into the device disclosed by the applicant in Fig 1. by providing "an optical filtering component between the Fabry-Perot Etalon and the second photo-detecting component". The ordinary artisan would have been motivated to modify the device disclosed by the applicant in the manner set forth above for at least the purpose of filtering out the desired wavelength.

Regarding claims 2-4, Fig 1 of the application discloses "a wavelength stabilization control device, further comprising: a servo component [315] for receiving the first electric signal and the second electric signal and performing signal processing. Wherein the tunable component is a tunable laser light source [1] and the beam splitting component is a beam splitter [311].

Regarding claims 5-7, Fig. 1 of the application and Andersen disclose everything claimed as applied above, but do not disclose the optical filtering

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component to be a high-pass edge filter, a low-pass edge filter, or a band-pass edge filter. However, it is well known in the art and is disclosed in the Encyclopedia of Laser Physics and Technology that a high-pass edge filter, a low-pass edge filter and a band-pass edge filter are all examples of optical filters.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Andersen into the device disclosed by the applicant in Fig 1. by providing "an optical filtering component between the Fabry-Perot Etalon and the second photo-detecting component", wherein the optical filtering component is a high-pass edge filter, a low-pass edge filter, or a band-pass edge filter. The ordinary artisan would have been motivated to modify the device disclosed by the applicant in the manner set forth above for at least the purpose of filtering out the desired wavelength.

Regarding claims 14-17, the apparatus as shown above with regards to claims 1-7, discloses the functions and limitations of the method claims 14-17.

### Optical filters

An optical filter is usually meant to be a component with a wavelength-dependent transmission or reflectivity, although there are also filters where the dependence is on polarization or spatial distribution. Examples for applications of optical filters are:

- o wavelength tuning of lasers
- o gain equalization of fiber amplifiers
- o single-frequency operation of lasers
- o suppression of lasing at unwanted wavelengths
- o eye protection e.g. by eliminating infrared laser light
- o spectral analysis (with a tunable filter and a broadband photodetector)
- o elimination of some unwanted light, e.g. of pump light in measurements of spontaneous Raman scattering
- o balancing a detector response or non-uniform spectrum of a light source

There are many different types of optical filters, based on different physical principles. Some examples for optical filters are:

- o absorbing glass filters, dye filters, color filters: based on wavelength-dependent absorption in some material such as a glass dopant, dye, pigment or semiconductor
- o Fabry-Perot interferometers, etalons, dielectric mirrors, fiber Bragg gratings, and arrayed waveguide gratings and photonic bandgap devices: based on interference effects and wavelength-dependent phase shifts during propagation
- o Lyot filters: also based on interferometric effects, but involving wavelength-dependent rotation of the polarization; used e.g. as birefringent tuners
- o filters based on wavelength-dependent refraction in prisms (or prism pairs) or on wavelength-dependent diffraction at gratings, combined with an aperture

Depending on the shape of the transmission curve, one distinguishes filters of the following types:

- o bandpass filters, transmitting only a certain wavelength range
- o notch filters, eliminating light of a certain wavelength range
- o edge filters, transmitting only wavelengths above or below a certain value (→ high pass and low pass filters)

See also: wavelength tuning, gain equalization

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-0218. The examiner can normally be reached on M-F 9-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Zandra V Smith  
Primary Examiner